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Amphibians and Reptiles [of the Sand Hills]

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Amphibians and Reptiles

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Introduction

Of the 60 species of amphibians and reptiles presently known from Nebraska, 27 are found in the Sand Hills and one more is marginal to the east. Fourteen species of the 60 are essentially statewide in distribution, including the Sand Hills, and eight species of reptiles are strongly influenced by the Sand Hills (Lynch, 1985). Of 12 species that occur widely over the moister eastern part of the state, only four extend into the Sand Hills, and one occurs only under the wet conditions along the rivers of the eastern Sand Hills.

Distribution of Species

Amphibians

The only salamander found in the Sand Hills is the tiger salamander, an animal distributed statewide. Surprisingly, these nocturnal amphibians can be found far away from water in such places as rodent burrows. Many salamanders metamorphose from the immature larval, gill-breathing stage, to its more typical adult form, an air-breathing, gill-less stage, when they become sexually mature. In the Sand Hills, this transformation often occurs in temporary ponds, but some become sexually mature while still in the larviform stage. These salamanders are called neotenic salamanders, and are more often found in permanent ponds. Both forms can be found in the same breeding ponds and are known to interbreed. Metamorphosis from larva to adult can occur in response to many stimuli (Lynch, 1985).

Two of the three toads that occur in the Sand Hills are the great plains toad and the rocky mountain toad; the latter, a widespread species, is more common. The great plains toad is a grassland species and is usually only found after heavy thunderstorms in late spring or summer. It breeds in temporary ponds, where its loud voice can be heard 3 kilometers away (Lynch, 1985). The rocky mountain toad, on the other hand, is found in gardens, on paths and roads, under and around buildings, along rivers and streams, and in blowouts (Lynch, personal communication). It breeds in more reliable bodies of water such as pools created by spring flooding, stock tanks, and lakes. The third toad, the plains spadefoot toad, which has southwestern affinities, is like the great plains toad in distribution and preference for temporary ponds formed after heavy rains. Once they breed and deposit their eggs, they move back into the prairie, where they burrow into the soil with their spade-like feet. Although they come out at night to feed, they are not often found except after rains. They too can be found by their loud chorusing.

A cricket frog and a chorus frog also are found in the Sand Hills. The northern cricket frog is an eastern frog that gets into the Sand Hills only in the wetter areas along the rivers, while the western striped chorus frog, a frog with boreal (cold, mostly northern) affinities, is distributed throughout the Sand Hills and breeds in marshes, ditches, and flooded areas of permanent lakes and ponds.

Of the true frogs, bullfrogs, although found over most of the state, are rare in the Sand Hills. The bullfrog, of eastern affinities, is the largest frog or toad in the state, and its distribution, before it became a game animal and therefore was stocked in many places, is unknown. Because it has a two-year larval stage, the bullfrog needs more permanent water for breeding. Only one other true frog is commonly found in the Sand Hills, the northern leopard frog. It is the only leopard frog in the marshes and ponds of the Sand Hills and occurs in sandy streams and marshes that run eastward toward the Missouri. The northern half of Nebraska is at the southern limit of distribution in the United States for this frog. Another true frog, the plains leopard frog *(Rana blairi)* is found in clayey soil just to the east and south of the Sand Hills but is not considered a Sand Hills species (Lynch, 1985).

Reptiles

There are probably six turtles found in the Sand Hills, but there are few records for the spiny softshell turtle, a turtle with southern and eastern affinities. There is a very recent record from the North Loup River in southeast Cherry County (John Lynch, personal communication). The snapping turtle, painted turtle, and ornate box turtle are statewide in distribution. Snapping turtles are eastern and are found in permanent aquatic habitats, such as marshes and lakes. Painted turtles require the same kind of habitat but are more widespread in distribution. Occasionally, painted turtles can

Great plains toad

John Lynch

John Lynch

Northern leopard frogs (green and brown)

be found in ditches along the road. The ornate box turtle, a southern turtle, is the most obvious terrestrial turtle, especially after rains in the early part of summer. It is often seen crossing the roads in the Sand Hills. Another southern species, the yellow mud turtle, reaches its northernmost limits in the Sand Hills, where it is found in non-alkaline ponds and lakes, while Blanding's turtle, a boreal species, reaches its southwesternmost limit in the Sand Hills. This species is restricted to lakes and marshes.

Three lizards are commonly found in the Sand Hills. All three can be found in open sandy areas, but the six-lined racerunner, a southern species, may prefer microhabitats with denser vegetation (Ballinger and Jones, 1985). The lesser earless lizard prefers open sandy areas with little vegetation, while the northern prairie lizard prefers foraging in blowouts and near structural objects in the sand, especially yucca (Jones and Droge, 1980). Both are southwestern or western species. The many-lined skink, a species with southwestern affinities, is common in the Sand Hills but rarely seen. The prairie skink, a grassland species, is only found at the eastern edge of the Sand Hills, just west of the extent of the tall-grass prairie.

Several snakes occur in the Sand Hills, seven of which occur throughout the area. Another snake, the eastern hognose *(Heterodon nasicus),* occurs in the Niobrara River but is marginal to the Sand Hills (Lynch, 1985). Of these, the green racer, milk snake, bull snake, and plains

John Lynch

Ornate box turtle

James Swinehart

Snapping turtle, North Fork of Birdwood Creek, McPherson County

and red-sided gartersnakes are statewide in distribution. Of the second group, the bull snake is a grassland species, the milk snake is western, and the rest are widespread. The plains gartersnake appears better adapted to dry conditions than the red-sided gartersnake. The latter is common in the larger marshes in the Sand Hills. Another water-loving snake, the common water snake, can be found along the rivers and marshes in the eastern portions of the Sand Hills, but records are few. This snake is an eastern species, and the Sand Hills are its northwestern range limit. Distributed in the western two-thirds and three-fourths of the region, respectively, are the prairie rattlesnake and the western hognose snake,

which are both southwestern species. Bull snakes and western hognose snakes are the most abundant snakes, but bull snakes seem to prefer areas with denser grass cover than hognose snakes, which seem to prefer the slopes (Ballinger and others, 1979). Prairie rattlesnakes are most common near extensive rock outcroppings, prairie dog towns, and dissected pastureland. They are less abundant in areas frequented by humans because of their perceived danger and subsequent extermination.

A ninth species, an unexpected record of the glossy snake was taken crossing the road 7 miles south of Thedford in Thomas County during September of 1988 (Joe Gubanyi, personal communication). This snake had only been taken previously from the southwesternmost corner of Dundy County. It prefers sandier habitats and would be considered a western or southwestern species making a record from the Sand Hills at the north-easternmost part of its range.

John Lynch

Six-lined racerunner

Soil Conservation Service

Bull snake, Morrill County

Summary

Conspicuous among amphibians in an upland Sand Hills community like Arapaho Prairie in Arthur County, where much work has been done, is the rocky mountain toad. Another toad, the great plains toad, appears after heavy spring rains and is temporarily more common before retiring underground again. Tiger salamanders have been observed on the slopes of the dunes away from water and can be found in rodent burrows and tunnels (Ballinger and others, 1979).

Moist conditions are a necessity for most amphibians and many reptiles. Some need to be around permanent water such as the chorus, cricket and tree frogs, but others, like toads, take advantage of more temporary conditions such as ponds formed after heavy spring rains. With the exception of the ornate box turtle, the other turtles in the Sand Hills prefer moister conditions or are literally aquatic. Of the two closely related gartersnakes, the plains and red-sided gartersnakes, the latter requires moister conditions, as does the common watersnake.

Like the other vertebrates, the amphibians and reptiles come together in the Sand Hills in a complex entwining of habitats, wet and dry. The wet habitat is further divided into temporary and permanent, still ponds and streams. Complete records of distribution and abundance of amphib-

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Western hognose snake

ians and reptiles in the central Sand Hills area are still unavailable.

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Table 10–1. Reptiles and amphibians of the Sand Hills

Amphibians	Affinity[1]	Dry	Temporary water[2]	Permanent water	Streams and rivers
Tiger salamander *(Ambystoma tigrinum)*	P	X	X	X	
Great plains toad *(Bufo cognatus)*	G		X		
Rocky mountain toad *(Bufo woodhousii)*	P	X	X	X	
Northern cricket frog *(Acris crepitans)*	E				X[3]
Western striped chorus frog *(Pseudacris triseriata)*	N		X		
Bull frog *(Rana catesbeiana)*	E			X	
Northern leopard frog *(Rana pipiens)*	N			N	
Plains spadefoot toad *(Spea bombifrons)*	W	X	X		
Turtles					
Snapping turtle *(Chelydra serpentina)*	E			X	
Yellow mud turtle *(Kinosternon flavescens)*	S			X[4]	
Ornate box turtle *(Terrapene ornata)*	S	X			
Painted turtle *(Chrysemys picta)*	P		X	X	
Blanding's turtle *(Emydoidea blandingii)*	N			X	
Spiny softshell turtle *(Trionyx spiniferus)*	S & E				X
Lizards					
Lesser earless lizard *(Holbrookia maculata)*	W	X			
Northern prairie lizard *(Sceloporus undulatus)*	W	X			
Six-lined racerunner *(Cnemidophorus sexlineatus)*	S	X			
*Prairie skink *(Eumeces septentrionalis)*	G	X			
Many-lined skink *(Eumeces multivirgatus)*	W	X			
Snakes					
Common or northern watersnake *(Nerodia sipedon)*	E			X	X
Plains gartersnake *(Thamnophis radix)*	P	X			
Common or red-sided gartersnake *(Thamnophis sirtalis)*	P			X	
Western hognose snake *(Heterodon nasicus)*	W	X			
Blue or green racer *(Coluber constrictor)*	P	X			
Glossy snake *(Arizona elegans)*	SW	X			
Bull snake *(Pituophis catenifer)*	G	X			
Milk snake *(Lampropeltis triangulum)*	W	X			
Prairie rattlesnake *(Crotalus viridis)*	W	X			

[1] Affinity from Hudson, 1942; Lynch, 1985 and personal communication; and Conant, 1975. Moisture-loving species are from the south (S), east (E), and north (N), and species associated with drier conditions are from the west (W) or southwest (SW). G is grassland and P is widespread.

[2] Includes isolated pools left by thunderstorms and by spring flooding and flooded areas next to permanent bodies of water.

[3] Found around ponds and lakes away from running water in eastern Nebraska.

[4] Non-alkaline.

*Species marginal to the Sand Hills.

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